

alleviating effect by the compression of the one inorganic filler 6f-1.

According to this thirteenth embodiment, the stress alleviating effect can be produced in addition to the operative effect of the ninth embodiment by virtue of the arrangement that the inorganic filler 6f-1 of the larger mean particle diameter is made of the material identical to that of the insulating resin 6m and the arrangement that the inorganic filler 6f-1 of the larger mean particle diameter is softer than the epoxy resin of the insulating resin 6m, as a consequence of which the one inorganic filler 6f-1 is compressed as shown in Fig. 27 to disperse the tension force of a reactive force against the compression around there when a stress is exerted on the insulating resin 6m.

(Fourteenth Embodiment)

Next, according to a method and apparatus for mounting an electronic component of, for example, an IC chip on a circuit board and an electronic component unit or module of, for example, a semiconductor device in which the IC chip is mounted on the board by the mounting method, according to a fourteenth embodiment of the present invention, based on each of the aforementioned embodiments, it is further acceptable to mix a portion 700 or a layer 6x, which belongs to the anisotropic conductive layer 10 and is

brought in contact with the IC chip 1 or the board 4, with a smaller amount of inorganic filler than another portion 701 or a layer 6y or with no inorganic filler 6f, as shown in Figs. 28A and 28B, Figs. 29A and 29B, Fig. 30 and Fig. 31. In this case, it is acceptable to gradually vary the amount of inorganic filler without definitely distinguishing the portion 700 brought in contact with the IC chip 1 or the board 4 from the other portion 701 as shown in Fig. 28A and 28B or to definitely distinguish them from each other as shown in Figs. 29A and 29B, Fig. 30 and Fig. 31. That is, in Figs. 29A and 29B, Fig. 30 and Fig. 31, the anisotropic conductive layer 10 is allowed to have a multilayer structure provided with a first resin layer 6x that is positioned in the portion brought in contact with the IC chip 1 or the board 4 and in which an insulating resin identical to the insulating resin 6m is mixed with the inorganic filler 6f as well as a second resin layer 6y constructed of the insulating resin mixed with a smaller amount of inorganic filler than the first resin layer 6x or with no inorganic filler 6f.

With this arrangement, the following effects can be produced. That is, if the inorganic filler 6f is mixed by the same weight percentage (wt%) with the whole body of the anisotropic conductive layer, then the inorganic filler 6f might increase on the IC chip side or the board side or

in the vicinity of the opposite surfaces of both of them and conversely decreases in a portion located in the middle of the IC chip 1 and the board 4. As a result, there is a greater amount of filler 6f on the IC chip side or the board side or in the vicinity of the opposite surfaces of both of them, and therefore, the adhesive strength is sometimes reduced between the anisotropic conductive layer 10 and the IC chip 1 or the board 4 or both of them. According to the fourteenth embodiment, with the arrangement that the portion 700 or the layer 6x brought in contact with either one of the IC chip 1 and the board 4 is mixed with a smaller amount of inorganic filler than the other portion 701 or the layer 6y or with no inorganic filler 6f, the reduction in the adhesive strength due to the large amount of inorganic filler can be prevented.

A variety of modification examples of this fourteenth embodiment will be described below.

First, as a first modification example, as shown in Fig. 28C, Fig. 29C and Fig. 32A, the anisotropic conductive layer 10 can be constructed so that the portion 700 brought in contact with both the IC chip 1 and the board 4 is mixed with a smaller amount of inorganic filler than the other portion 701 or with no inorganic filler 6f. Also, in this case, it is acceptable to gradually vary the amount of inorganic filler without definitely